

The Role of Sodium, Calcium, and Magnesium Transport in the Renal Distal Tubule

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Abstract : The renal distal tubule, which includes the early distal tubule (i.e., the distal convoluted tubule) and the late distal tubule (i.e., the connecting segment and initial collecting tubule), plays an important role in regulating ion homeostasis, body fluid volume, and blood pressure. These tubular segments regionally express many kinds of ion channels and transporters permeable to Na^+ , Ca^{2+} , and Mg^{2+} , which are exquisitely tuned by several regulatory mechanisms. Recent molecular biological and electrophysiological studies revealed the physiological functions and regulatory mechanisms of Na^+ , Ca^{2+} , and Mg^{2+} transports in the distal tubule. This short review presents the recent advance in the understanding of the roles of the distal tubule in regulating cation metabolism.

Key words : Renal distal tubule, Ion channel, Ion transporter, Mg^{2+} transport